

HARDINESS AND COPING STRATEGIES OF ADULTS
IN WEIGHT LOSS PROGRAMS

By

CAROLYN SCHMIDT HANSON

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Abstract of Dissertation Presented to the Graduate School
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Carolyn Schmidt Hanson

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The purpose of this study was to determine if, in obese women, cognitive hardiness and active coping styles were indicators of success in a weight loss program. Caucasian women over the age of 21 and at least 30 pounds overweight were recruited from various weight loss programs in Gainesville, Florida. Forty-one subjects fully participated in this study by completing a demographics form, the Stress Assessment Profile, and allowing their weekly weight to be

monitored during a six-month period. Subjects ranged in age from 25-76 years, on the average had two years of postsecondary education and made 3.5 attempts to lose weight in the past five years. Approximately half of these women weighed at least 200 pounds when they began the study. Five separate weight loss programs were represented and were categorized as commercial, social support, and private practice. Results indicated that those individuals who used avoidance coping and negative thinking were significantly more successful in losing weight than those who used positive thinking and problem-focused thinking. Women who were identified as being high in hardiness tended to be more stable in losing weight while the low hardy subjects demonstrated a greater tendency to engage in weight cycling. As seen in other documented weight loss programs, a high attrition rate of subjects was found. Of the forty-one subjects, only 19 were still actively involved in a particular weight loss program at the end of the six-month follow-up session. Results suggested that coping strategies were related to successful weight loss. The development of training programs using successful coping strategies needs to be explored.

CHAPTER 1 INTRODUCTION

Statement of the Problem

Obesity and the battle to lose weight are significant elements in the lives of many Americans. Obese individuals are often faced with discrimination and must contend with medical ailments as a result of their corpulence. Commonly, these individuals seek enrollment in weight reduction programs to lose weight. A majority of these program participants are women since women view obesity as being undesirable. Some female participants, as well as male, are successful in losing weight, but most have difficulty in maintaining weight loss for more than one year. Due to the complex nature of obesity, no one particular theory has adequately explained the cause of this condition nor the reason for its intractability. Whether dispositional characteristics may be involved in this inability to maintain weight loss is controversial and this continues to pique the curiosity of researchers (Fitzgibbon & Kirschenbaum, 1990; Foreyt, 1987; Rodin, Schank, & Striegel-Moore, 1989).

An estimated 50% of women in the United States are on a formalized diet at any one given time (Fontaine, 1991). A high attrition rate in weight loss programs exists as individuals commonly attempt to lose weight several times before they are successful (Viegner, Perri, Nezu, Renjilian, McKelvey, & Schein 1990). Many obese women who do lose weight are able to shed pounds, regardless of the type of method used, only to regain the lost weight within one year (Brownell, 1984). Grace (1987) has defined this condition as refractory obesity. More commonly known as the "yo-yo effect" and weight cycling, this is harmful psychologically to the dieting individual who cycles between periods of weight loss and weight gain. Until recently, yo-yoing was also considered to be physiologically detrimental, but research by a task force of the National Institutes of Health (1994) has concluded that attempting weight loss and possible regain is better than remaining obese and not trying to lose weight. These researchers stated,

Although conclusive data regarding long-term health effects of weight cycling are lacking, non-obese individuals should attempt to maintain a stable weight. Obese individuals who undertake weight loss efforts should be ready to commit to lifelong changes in their behavioral patterns, diet, and physical activity. (National Institutes of Health, 1994, p. 1196)

Obesity is considered to be a bodily state of having an excessive amount of adipose tissue (Gray, 1989). In differentiating obesity from overweight, Sjostrom stated, "Obesity is an increased amount of body fat (BF) or adipose tissue (AT), while overweight is an increased body weight (BW) in relation to height" (1993, p. 14). Fat is essential for certain functions such as insulation and the smooth transmission of neural impulses, but an overabundance of this substance has been linked to hypertension, diabetes mellitus and heart disease (Brownell, 1984; Gray, 1989; Kissebah, Freedman, & Peiris, 1989).

For the purpose of this study, obesity is defined as individuals who weigh at least 30 pounds over the desirable weight according to the Metropolitan Life Insurance Company Tables (Gray, 1989). The Metropolitan Life Insurance Company Tables have been the standard for determining ideal weight for specific heights (Gray, 1989). These actuarial tables are frequently used by diet programs to evaluate the degree of obesity as well as to set reasonable weight loss goals for individuals. The body mass index (BMI), an index of adipose tissue, is mentioned frequently in the literature as

being a more precise method of determining levels of obesity. This calculation is made by dividing the weight of a person by the height squared. According to established guidelines, a BMI of greater than 28.6 kg/m^2 signifies obesity, whereas those individuals with a BMI between 23.9 and 28.6 kg/m^2 are considered overweight (Kuskowska-Wolk, Karlsson, Stolt, & Rossner, 1989). Atkinson (1993) stated that a BMI of 27 kg/m^2 signified an obese condition. By using the criteria of 30 pounds overweight, one ensures that his/her BMI would be 27 kg/m^2 or higher, thus meeting the criteria of obesity by another measure. Therefore, only women who are at least 30 pounds overweight, according to the Metropolitan Life Insurance Company Tables, will meet the qualifications of this study.

Although research has demonstrated that genetics can play an important role in the development of obesity (Foreyt, 1987), psychological aspects cannot be disregarded. In several recent studies, the Minnesota Multiphasic Personality Inventory (MMPI) was used to determine if dispositional differences exist between the obese and the nonobese. Obese individuals were more likely to have higher scores on depression, hysteria and hypochondriasis when

compared with nonobese counterparts (Grana, Coolidge, & Merwin, 1989; Scavo, Barletta, Vagiri, Burla, Fontana, & Lazzari, 1990).

In other studies, researchers claimed that no specific personality constructs typify the obese individual but instead a heterogeneity of personality factors were commonly present (Fitzgibbon & Kirschenbaum, 1990; Stunkard & Wadden, 1992). However, several groups of researchers have noted that obese individuals who engage in binge eating (eating massive amounts of food in a very short time followed by severe discomfort and feelings of self-condemnation) reported more psychological distress, depression, and negative moods than obese nonbingers (Fitzgibbon & Kirschenbaum, 1991; Marcus, Wing, & Hopkins, 1988). In addition, morbidly obese people (at least 100 pounds over ideal body weight) seeking surgical means of weight reduction (i.e. vertical banded gastroplasty) often met diagnostic criteria for personality disorders (Black, Goldstein, & Mason, 1992).

Obesity is a disorder that may be related to stress. Kobasa and Puccetti (1983) mentioned that executives most frequently reacted to work stress by reportedly becoming

overweight. Stress is defined as "a particular aspect of emotion, the negative disturbing aspect as in fear, anxiety, danger, and depression. "Stress" conveys the idea that the person or animal is beset by powerful pressures which greatly tax the adaptive resources of the biological or psychological system" (Lazarus, 1966, p. 10). Weiner viewed stress as an individual type of experience which affects individuals differently:

. . . . many stresses are part and parcel of everyday life, yet they may still test the adaptive capacities of some people, but not of others. These challenges to the abilities of some people to cope can only be appraised by the observer in terms of their meaning to, and the sensitivity of, the person many stressful experiences, such as the consumption of alcohol or illicit drugs and overeating, are self-induced and not the product of external, objective events Not every stimulus is stressful: each person has his very special sensitivities. (1987, p. 96)

Lazarus and Folkman (1984) also stated that stress is interpreted according to an individual's particular sensitivities and how he or she appraised the situation.

Whether obese individuals perceive stress due to their environment, their overweight condition or dieting practices, some individuals are apparently more successful than others in attempting weight loss. Foreyt (1987) stated that psychological problems such as stress may be a result

of dieting as opposed to being obese. Rodin et al. concurred by adding, "Dieting over long periods of time has been linked with negative affect" (1989, p. 49). Brownell and Stunkard (1981) reported that obese individuals had higher depression scores on the Beck Depression Inventory as they lost weight over a six-month treatment period, but their scores subsequently decreased when weight was regained after a one-year, follow-up session. Wadden and Stunkard (1993) remarked that emotional disturbances were present in the obese when they were reducing and believed that discrimination of the obese was specifically responsible for depression. On a more positive note, investigators have demonstrated that obese subjects who scored high on internal locus of control measures were generally more successful in weight loss programs (Rodin et al., 1989; Silverman, Israel, & Shapiro, 1986). The literature reflects an ongoing debate regarding the nature of obesity and whether personality differences account for success or failure in weight loss programs. In the last decade, an interesting construct known as "hardiness" has been studied. Hardiness is a personality trait which consists of three interrelated components,

control, commitment, and challenge, and is defined as follows:

Persons who experience high degrees of stress without falling ill have a personality structure differentiating them from persons who become sick under stress. This personality difference is best characterized by the term hardiness Hardy persons are considered to possess three general characteristics: (a) the belief that they can control or influence the events of their experience, (b) an ability to feel deeply involved in or committed to the activities of their lives, and (c) the anticipation of change as an exciting challenge to further development. (Kobasa, 1979, p.3)

Kobasa and her colleagues have been instrumental in introducing the construct of hardiness to the health and psychology literature in the late 1970s. Other researchers have more recently developed their own versions of hardiness which are heavily based on Kobasa's work. Pollock and Duffy (1990) developed the Health-Related Hardiness Scale for nurse educators/researchers. Health psychologist Nowack (1990) developed the Stress Assessment Profile which measured cognitive hardiness. Both cognitive and health-related hardiness tap the same three interrelated components of control, commitment, and challenge and in essence are the same as Kobasa's original construct.

A lack of hardiness has been associated with medical disorders such as cardiovascular disease and arthritis (Contrada, 1989; Lambert, Lambert, Klipple, & Mewshaw, 1990). Both heart disease and arthritis are known to be exacerbated by stress. Typically, an individual may perceive stress due to specific life events or daily hassles (Edwards & Cooper, 1988). Stress can be viewed either in a positive (the absence of stress would be death) or negative fashion but typically chronic stress can lead to suppression of the immune system (Myers, 1990).

The manner in which an obese person copes with dieting may be associated with hardiness. "Coping may be defined as attitudes and behaviors designed to control taxing external and intrapsychic life demands" (Sussman, Brannon, Dent, Hansen, Johnson, & Flay, 1993, p. 600). Lazarus and Folkman defined coping as being of two general types: "Coping serves two overriding functions: managing or altering the problem with the environment causing distress (problem-focused coping) and regulating the emotional response to the problem (emotion-focused coping)" (1984, p. 179). In explaining a proposed model of hardiness, Hull, Van Treuren, and Virnelli stated "hardiness reduces the impact of stressful life

events by increasing the use of successful coping strategies" (1987, p. 519). In line with this reasoning, obese persons high in hardiness may be expected to use their resources to cope effectively with stress while participating in a weight loss program.

Purpose of the Study

Research on hardiness has focused on stress related disorders such as cardiac disease and rheumatoid arthritis. In a number of these studies, certain individuals undergoing stressful situations did not become sick or their chronic condition was ameliorated. However, not all people react favorably to stress and are able to effectively cope with it. An explanation of possible reasons that hardiness moderates the negative effects of stress was given by Williams, Wiebe, and Smith:

The first proposed mechanism involves an appraisal process whereby hardy individuals are able to reframe or reinterpret stressful experiences in such a way that stress is actually reduced. The second mechanism involves coping behaviors whereby hardy individuals have the ability to behave in an adaptive manner once stress is perceived or experienced. (1992, p. 238)

The Stress Assessment Profile (SAP), developed by Nowack (1990), is a 123-item self-report questionnaire and includes scales of interest to the present study. These include "hardiness," "problem-focused coping," and three measures of "emotional coping." Based on studies of hardiness and coping in other areas, high hardiness was predicted to be associated with success in weight loss and that different coping styles would be associated with weight loss.

Obesity can be viewed as a stress disorder. Sjoberg and Persson (1979) commented that (a) most subjects broke their diets at particular times; and (b) they most often did so due to the influence of negative emotional stress and (c) these breakdown periods in dieting were commonly preceded by distorted reasoning. Many individuals do achieve short-term success in losing weight but are unable to sustain weight loss, while others join a weight loss program but soon drop out. On the other hand, some individuals have maintained their weight over the years, but in comparison with the vast number of dieters this is a small group. The hardiness construct is postulated as being helpful in explaining why some dieters are more successful than others. A successful

hardy obese person is predicted to have a higher internal locus of control, be committed to completing a weight loss program and view losing weight as a challenge to be mastered rather than a threat.

Screening individuals before they engage in weight loss programs may assist professionals in identifying those people who have a higher probability of completing and benefitting from a particular program. If hardy obese individuals with an active (or problem-focused) coping style can be identified prospectively, this could be an appropriate method for selecting successful candidates for weight loss programs. In this way, a simplified program would benefit the identified hardy obese, active coping individuals whereas the nonhardy obese, nonactive coping individuals (those who do not use problem-focused coping but other coping strategies that are ineffective in dealing with stress) would need more intensive services (such as social support and more intense behavioral therapy) for a longer period of time. After completion of a weight loss program, follow-up services are also deemed essential for nonhardy individuals since they are likely to have maladaptive coping strategies (Williams et al., 1992).

Limitations

The purpose of this study was not to differentiate amongst methods of diet program intervention but was exploratory in nature. Although different weight loss programs with various philosophies and time lengths were sampled, the interest lies not in program affiliation but in individual characteristics. Therefore, individuals from several weight loss programs were sampled, which may confound the results. Having subjects from one weight loss program would have been preferable but not enough women were available at any one site.

Subjects who volunteered to be in this study were a convenience sample from the weight loss programs that agreed to have their clients participate. Obtaining a random sample of sites and subjects is a more effective method, but not every contacted weight loss program desired to be involved in this project due to their own issues of confidentiality. In addition, not every individual wanted to complete a 123-item questionnaire. The results from this study cannot be generalized to all obese individuals in this country and are specific to only the subjects represented by this sample.

A continual problem in studying weight loss programs is the high rate of attrition of participants. With the exception of well funded programs, studies in this area depend on volunteers. For example, in a review of 28 studies of weight cycling, over 40% of the studies were done using 30 subjects or less (National Institutes of Health [NIH], 1994). Results obtained from such studies do not allow for generalization beyond these studies to larger populations even though about 50% of the women in the United States are enrolled in a formal weight loss program at a given time (Fontaine, 1991).

The issue of time also was not controlled in this study. Follow-up studies after treatment in a weight loss program have commonly shown that individuals regain the lost weight over time. Though many obese people do lose weight and can sustain weight loss, they more frequently regain the weight gradually over several years. Follow-up studies on weight loss maintenance have ranged from six months to five years posttreatment (DelPrete, English, Caldwell, Banspach, & Lefebvre, 1993; Flynn & Walsh, 1993; Hakala, Karvetti, & Ronnema, 1993; Kramer, Jeffery, Forster, & Snell, 1989; Wolfe, 1992). Six months is thus a minimum standard for

evaluating the success of a weight loss program (Atkinson, 1993).

Using a self-report instrument such as the Stress Assessment Profile (SAP) is a subjective means of evaluating hardiness and coping. Being dependent on a subject's truthful response may raise questions of validity. Lazarus and Folkman emphasized that self-reports were rich in content and argued:

To shut off this source of information is to decorticate the human as an object of investigation and relegate people to infrahuman status Subjective reports allow us to learn more about stress and emotion, and about coping and its adaptational outcomes, than any other single source, despite the difficulties in validation. (1984, p. 322)

In a study using 1530 subjects, Nowack (1990) reported Cronbach alphas of .70 to .84 and test-retest reliabilities of .70 to .96 for the SAP.

Significance of the Study

Educational psychology involves the study of behavioral phenomenon in educational settings. This includes such educational components as those in industry and the health arena. In the health arena, an educational psychologist addresses issues of needs and styles of learning and in

addition has the psychological background to assist in modifying behaviors and develop educational materials and technology. Educating people about methods of weight control that are suitable to their particular needs is imperative. Individual differences are present in learning and in hardiness and coping styles. Perhaps, some individuals need to learn cognitive modification techniques while others need to change their coping skills. Individualizing a weight loss program will ensure that each person receives information that is tailored to her needs and is suitable for her circumstances. Conceivably, educational programs may be developed to assist individuals in increasing their level of hardiness which may in turn enable them to more effectively cope with dieting (decreasing the likelihood of dropping out of several programs before success is achieved).

By being able to distinguish differences among the obese, more effective treatment can be tailored to the individual. The SAP may be a useful method of providing training intervention if this scale can identify high hardy and low hardy individuals and whether the hardy are more successful in weight loss programs. By identifying characteristics such as hardiness and coping techniques in

obese women prior to their participation in a weight loss program, appropriate methods of intervention can be implemented. For example, instead of a regimented program, an individualized program that diagnoses and treats deficit areas may enable some previously identified hardy people to be more successful in learning how to control their weight. Sitton and Weber stated, "A treatment program that first assesses personality type and then constructs individual treatment based on this assessment is likely to have a higher probability of success than one which treats all overweight persons with the same approach to dieting" (1987, p. 925).

Information on diet, exercise and behavioral/psychological support are suggested as pertinent services that should be offered in weight loss programs for the average obese person (Weinsier, Wadden, Ritenbough, Harrison, Johnson, & Wilmore, 1984). Standard behavioral support or treatment consists of ". . . . training in self-monitoring, stimulus control, self-reinforcement, cognitive modification, and exercise management" (Perri, McAdoo, & Spevak, 1984, p. 480). Educational psychologists can teach these behavioral techniques and may be well suited to deal

with people who suffer from psychological problems of overeating.

Although more emphasis is currently placed on weight reduction, in the near future, prevention may have a more important role to play. Garrow (1992) suggested that obesity prevention should occur in the elementary schools, and health educators, teachers, and parents should be responsible for discussing the dangers of obesity with children. This may be a most effective way of educating young people who have not yet practiced decades of poor eating and exercise habits. Educational psychologists could consult with various schools and provide materials and lectures on obesity that would interest the young child.

Hypotheses

The purpose of this study is to determine if, in obese women, measures of cognitive hardiness and active coping are indicators of success in weight loss programs. Women were selected for several reasons. First, many more women than men enroll in weight loss programs (personal communication with three program directors in Alachua County, Florida; September, 1993). Second, women appear to be more

stigmatized by being obese when compared to men. Third, less substantial information exists on women and hardiness.

The following null hypotheses will be tested in this study:

1. There will be no significant difference in pounds lost for high and low hardiness groups as measured by the Stress Assessment Profile (SAP).

2. There will be no significant difference in pounds lost for high (problem-focused or active) and low (nonactive) coping groups as measured by the SAP.

3. There will be no interaction between hardiness and coping scores and pounds lost in a weight loss program for high/low hardiness and coping groups as measured by the SAP.

CHAPTER II REVIEW OF THE LITERATURE

Introduction

The purpose of this chapter is to review pertinent literature concerning obesity and weight loss programs especially applicable to the adult female population. Research on stress, hardiness and coping is presented since these characteristics affect obese individuals in different ways. The proposed relationships between obesity and stress as well as obesity, hardiness, and coping are substantiated by literature in related areas.

First, literature on obesity and weight loss programs will be reviewed with the following areas being covered: definition of obesity; the stigma of female obesity; cultural variations of obesity; the economics of the diet industry; the risks associated with obesity; reasons for relapse after weight loss; possible qualities of successful weight loss programs; and follow-up studies on the overall effectiveness of weight loss programs. Under the heading of

stress, the following topics will be covered: definition of stress; physiological effects of stress; stress in the workplace; and stress and obesity. The literature on hardiness incorporates a variety of studies performed over the last 15 years, a critique of the hardiness construct, and more recent measures of hardiness used in research. The coping literature will review definitions and functions of coping in addition to its interrelationship with obesity and hardiness. Finally, a summary of the literature on stress, hardiness, and coping will complete this chapter.

Obesity

Researchers have not yet agreed upon any one specific definition of obesity. Using standard tables of ideal weight for height, Wadden (1993) defined mild obesity as being 5 to 39% over ideal body weight; moderate obesity being 40 to 99% over ideal body weight; and severe obesity (known as morbid obesity) as 100% or more over ideal body weight. He emphasized that individuals who were 40% or more overweight (constituting moderate obesity) had a chronic condition requiring life-long care. Gray (1989) defined female obesity as being 30% or more of ideal body weight being body fat.

Not all researchers have chosen to use percentage of ideal body weight being body fat as the only method of defining obesity. Atkinson (1993) proposed that a body mass index (BMI) greater than 27 kilograms per meters squared determined obesity and indicated an increased risk of morbidity whereas others have specified that a BMI greater than 28.6 kg/m² signified obesity (Kuskowska-Wolk et al., 1989). The BMI considers weight in association with height and a nomogram has been developed to identify men and women who are categorized according to acceptable, overweight, and obese body frames (American Dietetic Association, 1988).

Female Obesity

Women are more affected by the negative image of obesity than men (Foreyt, 1987). The Rubenesque women of the twentieth century are no longer highly admired as they once were in earlier years. The negative attitudes regarding obesity are developed early with females whereas they are mostly absent with males. Striegel-Moore, Silberstein, and Rodin stated: "The more a woman believes that what is fat is bad, that what is thin is beautiful and beautiful is good, the more she will work toward thinness and be distressed

about fatness" (1986, p. 247). Harris, Waschull, and Walters stated

The results are consistent with the idea that discontent with weight and concern about the body is endemic to women today. A challenge currently facing health care professionals is to encourage women to shift their concern from the temporary appearance and weight of their bodies to their long-term physical and psychological health. (1990, p. 1201)

Sobal and Stunkard (1989), in a comprehensive review of the obesity literature, concluded that obesity was more stigmatizing for women and emphasized that women were more willing to accept this stigma. Another interesting finding was that an inverse relationship existed between socioeconomic status (SES) and obesity in women, no matter what population or which measure of SES was used (e.g. income, educational level or occupation and any combination thereof). Since women are more affected by being obese, they are more likely to seek professional services to assist them in losing weight than men. Females may feel that more is at stake when they are overweight as compared to their male counterparts. However, cultural differences do exist. Brown (1993) found that female Hispanic and Afro-Americans were not as focused on physical appearance and believed that fatness demonstrated cooking ability and good health.

Furnham and Alibhai (1983) stated that some cultures valued obesity as it signified success and economic security. They also noted that the longer immigrants lived in western societies, the less obese they were when compared with more recent immigrants.

Weight Loss Programs

Sixty-five million Americans are on a diet at any one given time spending 30 to 50 billion dollars yearly on weight loss products and services (Robison, Hoerr, Strandmark, & Mavis, 1993). Frequently, individuals who lose weight regain the lost weight within one year. This is called refractory obesity or the "yo-yo effect" (Grace, 1987). Colditz (1992) conservatively estimated that 39.3 billion dollars or 5.5% of total costs for illness was spent in 1986 on medical conditions associated with severe obesity (e.g. cardiovascular disease, gall bladder disease, hypertension). In addition to potential medical problems, obese individuals may suffer psychologically, socially and may have difficulty obtaining employment (Brownell, 1984).

Owing to its complex and refractory nature, obesity has been studied and treated by a wide variety of disciplines.

Treating obesity has been a frustrating affair over the years as Brownell has succinctly stated, "If cure from obesity is defined as reduction to ideal weight and maintenance of that weight for 5 years, a person is more likely to recover from many forms of cancer than from obesity" (1984, p. 406). Countless adult obese women enroll in a variety of weight loss programs with the majority being unable to sustain weight loss for one year (Foreyt, 1987). Refractory obesity is a serious problem for individuals due to psychological and physiological ramifications. For example, women who continue to undergo dieting for long periods of time may feel deprived and depressed (Rodin et al., 1989). The body also responds in a negative fashion to continuous dieting regimes and medical problems may ensue.

Grilo, Shiffman, and Wing (1989) studied the nature of relapses among 57 dieters who were 20% above ideal body weight according to the Metropolitan Life Insurance Company norms. Relapse was defined as either excessive caloric consumption (intaking 1,000 to 3,400 calories at one time) or eating forbidden foods (i.e., hot fudge sundaes, brownies) without excessive consumption. Grilo et al. (1989) classified relapses into three clusters: 1) Mealtime

situations 2) Upset periods (anger mostly was the affect reported) and 3) Low arousal periods (inactivity, waiting, relaxation). Most of the relapses occurred at home and nearly half were preceded by some type of negative effect. Results of this study demonstrated that dieters who used both behavioral coping (performing an overt activity such as walking away from a table of food) and cognitive coping (performing a mental activity such as reminding yourself that you are on a diet or are satiated at this point) had lower rates of lapses than those who used no coping strategies at all or for those dieters who used several types of only one coping strategy.

Many kinds of weight loss programs are available ranging from self-help support groups such as Weight Watchers and TOPS (Taking Off Pounds Sensibly) to individual sessions with dieticians and commercial programs selling their own weight loss products. Work site weight loss programs are becoming more popular as they are convenient and economical (Brownell & Wadden, 1991). Very low calorie diets (VLCD), ranging from 200-800 kilocalories a day, have been suggested as a fast method of losing weight for

those individuals at least 50 pounds overweight (Foreyt, 1987).

Though a variety of weight loss programs are available, individual success in maintaining weight loss is limited. Williamson and Levy commented, "Whereas most treatments result in some weight reduction, there is within a year a relapse to obesity in almost 100% of the cases" (1988, p. 403). Reacting to the failure that many obese encounter when attempting numerous times to reduce without sustained success, Garner and Wooley (1991) recommended normalized eating without dieting and being satisfied with a high but stable weight. They viewed weight fluctuations as being detrimental to the obese person and stressed that weight loss clients be made fully aware of long-term effects of regaining weight as well as non-dietary approaches.

Despite the numerous accounts of weight loss failures noted in the literature, some obese individuals still successfully manage to lose weight and sustain their weight loss. Grilo et al. (1989) mentioned that people who were able to engage in long-term coping may be more likely to maintain weight loss. Obese individuals who remained in a weight loss program for its duration were more inclined to

lose weight than those who completed a portion of the program (Fitzgibbon & Kirschenbaum, 1991). Exercise has been noted as the way to keep weight off while watching what you eat but not dieting per se (Bricklin, 1993). Foreyt (1987) accentuated the need for maintenance programs after the initial treatment was over as being crucial to successful and enduring weight loss. Behavior therapy combined with posttreatment management has resulted in long term weight loss for many people (Perri, McAllister, Gange, Jordan, McAdoo, & Nezu, 1988). Obesity researchers Brownell and Wadden (1991) who mentioned that weight loss maintenance research was less than a decade old, recommended continued client-therapist contact along with engagement in physical activity for weight loss maintenance. Yet another point of view has been given by Wolfe: "Allowing subjects to reach personally meaningful weight-loss goals prior to treatment cessation should produce the strongest maintenance outcome" (1992, p. 475). While research is not encouraging regarding weight loss programs, suggestions that "coping" or "personally meaningful goals" are offered as explanations for more successful and permanent weight loss.

Personality Characteristics and Weight Loss

Control and commitment in dieting have been addressed separately with mixed results. Control refers to either an internal or external locus of control while undergoing a diet regimen. That is, individuals with an internal orientation will feel responsible for their eating behaviors and will attempt to regulate their actions accordingly, while those with an external orientation are more likely to view dieting as something that is not within their power to manage (Nir and Neumann, 1991). Theoretically, dieters with an internal locus of control will attribute success in losing weight to their efforts and abilities, while dieters with an external locus of control will attribute success to luck or fate. Commitment is the degree of obligation that dieters have while participating in a weight loss program whether they remain in the program for the duration or at some point drop-out.

In studying internal/external locus of control and weight loss, Jeffrey (1974) used a three-group design to determine whether an external reinforcement group or two different types of self-control groups were more effective in maintaining weight loss. Either method of self-control

intervention was more effective in weight loss maintenance than the external reinforcement group. Colvin and Olson, in a follow-up study on obese individuals in a weight loss program, found that the reason for successful weight loss depended on " . . . the acceptance of personal responsibility for all aspects of weight control" (1984, p. 306). On the other hand, Nir and Neumann (1991) found no significant difference in weight loss between obese individuals who had either an internal or external locus of control as measured by Rotter's I-E Locus of Control Scale (Rotter, 1973). However, they did find that obese individuals with low self-esteem lost significantly less weight than those with medium and high levels of self-esteem.

With reference to commitment, Fitzgibbon and Kirschenbaum (1991) found that obese individuals in a weight loss program who remained in treatment for the entire time were more successful in losing weight than dropouts. Sjoberg and Persson found a lack of commitment to dieting related to unsuccessful weight loss:

A basic and difficult problem in the regulation of action occurs when longterm commitments are in conflict with strong desires. Such a problem is often referred

to in common sense terminology as a volitional problem and failures to adhere to values and commitments may be termed volitional breakdowns. Such breakdowns are very common in attempts by people to regulate various forms of addictive behaviors such as smoking or excessive eating. (1979, p. 349)

Brownell, Marlatt, Lichtenstein, and Wilson (1986) reported that multiple attempts were made by dieters before they were successful in losing weight and then maintaining that loss. They suggested that the obese person's motivation be evaluated before a weight loss program commences.

Grana et al. (1989) and Scavo et al. (1990), using the Minnesota Multiphasic Personality Inventory (MMPI), found that the obese were more likely to have higher scores on depression, hysteria, and hypochondriasis than the nonobese. Black et al. (1992) reported that the morbidly obese often met diagnostic criteria for personality disorders. Recently, researchers have concluded that screening individuals for weight loss programs, by using in-depth psychological assessments, was vital for increasing the likelihood of providing successful treatment (Fitzgibbon & Kirschenbaum, 1990, 1991).

Instructional Intervention

Brownell and Wadden (1991) recommended that cognitive behavioral therapy (CBT) be incorporated into programs providing intensive intervention for the heavier person.

They proposed

Behavioral treatment is usually provided weekly for 12 to 25 sessions in closed groups of 8 to 12 persons. In contrast to group self-help . . . which is frequently limited to describing the behavioral changes desired, behavioral treatment concentrates on the process of behavior change (i.e., how to adopt new eating, exercise, and dietary habits). Groups may be led by psychologists, dietitians, nurses, exercise specialists, or lay persons. We believe, however, that the most effective treatment is likely to be delivered by a multidisciplinary team, led by a behavioral psychologist with an understanding of group dynamics (which may become a problem over the course of treatment). (p. 167)

Besides behavioral treatment, instruction concerning proper dietary habits, exercise, and psychological support are commonly endorsed by weight loss program directors. The American Dietetic Association (ADA) position paper stated, "Weight control programs should include behavioral management techniques for food intake, exercise, stress, and improved self-esteem. The programs should focus on loss of body fat and avoidance of repeated diet failures" (American

Dietetic Association, 1989, p. 1816). Weinsier et al. (1984) emphasized that cognitive restructuring was essential to the dieting process. Cognitive restructuring consists of using positive and coping self-statements while attempting weight loss. In other words, cognitive restructuring focuses on accentuating the positive steps made in adhering to a diet, even when lapses occur, as opposed to making derogatory comments.

Follow-up Studies on Weight Loss Program Effectiveness

Researchers have investigated the best methods of losing weight by studying the effectiveness of common weight loss programs over time only to find that it may be of greater import to match individual patients to different treatments (Lissner, Steen, & Brownell, 1992; Willard, 1991). Willard stated, "Recognition of the diverse clinical forms of obesity and their different etiologies permits treatment regimens to be more specific, increasing the likelihood of success" (1991, p. 2099). However, even an individualized approach will not guarantee success in maintaining weight loss in some obese people.

Confounding the weight loss issue is that the length of different and similar programs vary as well as the time when follow-up studies are usually conducted. Robison et al. (1993), in evaluating program length, reported that weight loss programs that were six to twelve months in duration were too short for individuals who had been obese for 20 years or more. However, not all obese people interested in losing weight have been obese for two decades. A majority of weight loss programs in the literature were noted to last for one year or less due to loss of patient motivation over an extended time period and the resources needed from health professionals (Harris et al., 1990; McArtor, Iverson, Benken, & Dennis, 1992; Munro & Cantley, 1992).

Very low calorie diets (VLCD), which have been highly recommended in the recent past due to the incidence of substantial and rapid weight loss, have ranged in length from 8 to 26 weeks (Flynn & Walsh, 1993; Holden, Darga, Olson, Stettner, Ardito, & Lucas, 1992; Perri et al., 1988). In an abbreviated eight-week VLCD program consisting of 118 obese people, patients reported when contacted by telephone (Holden et al., 1992) that they maintained a weight loss of an average of 13.6 kilograms during a three-year period. A

26-week VLCD program demonstrated that a 10% weight loss was initially obtained by 90% of the patients and this was maintained by 33% of the participants after 30-months posttreatment (Flynn & Walsh, 1993). In this study, the researchers suggested that VLCD was effective for some patients and the ones who benefitted most stayed in the program for at least 19 weeks.

Behavioral methods used in losing weight have also been documented as being effective. Brownell and Kramer (1989) stated that the best behavioral programs commonly produced weight losses in the range of 25-30 pounds. They emphasized that the best part of this particular method was weight loss maintenance. Stunkard has also been a strong advocate of the behavioral approach:

In study after study, behavior modification has been systematically compared with a wide variety of alternate treatment methods. And in every instance, those people treated with behavior modification have lost more weight. This kind of unanimity is unprecedented in psychotherapy research. (1977, p. 175)

The behavioral method can involve behavior modification alone or augment other approaches. In typical 18-week behavior modification programs applied to eating and exercise, patients commonly lost an average of 9.9

kilograms. After a one-year follow-up, 66% of the weight losses were maintained (Foreyt & Goodrick, 1993). Kramer and Jeffery (1989) followed 114 men and 38 women four to five years after they completed a 15-week behavioral treatment program. Significant mean weight loss was still obtained by the participants but an accelerating pattern of regain was evident over the years. Women were better than men at maintaining weight loss.

In addition to the different lengths of weight loss programs, the period of follow-up in studies has also varied substantially. Atkinson (1993) has specified that six months is a minimum standard for conducting a follow-up study. From his research, he concluded that weight loss maintenance for five years signified full success. Wolfe (1992) followed 267 patients in a commercial program one year after completion. By using a mailed questionnaire, he determined that 82% of the patients remained within 10% of their posttreatment weight. In a one-to-three year follow-up of a community based program, 65% of the subjects weighed an average of six pounds less at the time of the follow-up interview than when they entered the program (DelPrete et al., 1993). The National Institutes for Health (NIH) Technology Assessment

Conference Panel (1993) reviewed controlled weight loss settings in which participants who remained in various programs lost approximately 10% of their weight at program completion. Thirty-three to 66% of this weight loss was regained in one year and almost all was regained within five years. The NIH suggested that weight loss was a lifelong challenge and recommended that more effort and priority be put into researching obesity.

Summary of the Obesity Literature

The research conducted in obesity and weight loss programs demonstrated the following:

1. No one exact definition of obesity exists in the literature but percentage of ideal body weight being body fat and body mass index (BMI) are frequently used.
2. Females are more affected by being obese than males and more commonly enroll in weight loss programs.
3. Refractory obesity has proved to be a serious medical and economic problem in this country.
4. Obese individuals who feel committed to lose weight and remain in weight loss programs are more successful than individuals who are dropouts.

5. Mixed results remain regarding specific personality characteristics such as internal/external locus of control, commitment and their relationship to successful/unsuccessful weight loss. The morbidly obese often met diagnostic criteria for personality disorders.

6. The literature has shown that a variety of weight loss programs are available and obese people are initially successful at losing weight but maintenance of weight loss over a five-year period is not achieved by the majority of dieters.

Stress

Weiner stated,

Borrowed from classical mechanics, the concept of stress has come to denote to behavioral scientists some external event or experience--a challenge, change, or task--that is apperceived and appraised, has an impact on, and perturbs a person's mind. (1987, p. 96)

Stress is interwoven into our daily lives--a necessary condition, without it individuals would not be alive. If a person is overwhelmed by too much stress (which varies from individual to individual), the immune system may be compromised and illness may follow (Myers, 1990).

Sowa (1992) recommended that counselors understand people's perceptions of stress since stress affects people differently. Understanding a person's stress perception is called systematic rationalization. The following three steps constitute systematic rationalization:

- 1) Identify the stressors. "Stressors are defined for clients as events that produce aversive symptoms such as feelings of tension, anxiousness, urgency, anger, or concern" (Sowa, 1992, p. 180).

- 2) Classify the stressors into four areas defined by two dimensions: important/unimportant and controllable/uncontrollable.

- 3) Review the classification of the stressors. For example, according to Sowa (1992), losing weight for health reasons would be important and controllable. Sowa (1992) found that the systematic rationalization process was significantly more effective with stressed clients than when just using general stress management techniques (i.e., relaxation techniques, reducing the stressors).

Stress has been associated with heart disease. Heart disease may be viewed as a disorder of lifestyle since many

of its identifiable risk factors can be modified (e.g., smoking, high fat diet, high cholesterol, etc.) (Krantz, Contrada, Hill, & Friedler, 1988). Krantz et al., in explaining the relationship of stress and heart disease, stated,

Specifically, stress is a psychological process, which is defined as the internal state of the individual who perceives threats to his or her physical or psychic well-being (Lazarus, 1966). Experimental research on stress has indicated that the physiologic, as well as the psychologic and behavioral effects of most stressors, depend strongly on psychological factors. (1988, p. 334)

These researchers emphasized that hostility and anger were the major predictors of coronary heart disease and of much lesser importance were time urgency and competitiveness (common Type A behaviors).

Work Stress

Several studies have investigated the incidence of work stress amongst female professionals (Long, 1988; Long, Kahn, & Schutz, 1992), farmers (Heppner, Cook, Strozier, & Heppner, 1991) and executives (Kobasa & Puccetti, 1983). In evaluating the stress of female managers in male-dominated careers, Long et al. (1992) found that women with

traditional beliefs and lifestyles (e.g., married with children) were less threatened by stressors in the workplace. They proposed that marriage insulated women from the psychological distress of the work environment and having multiple roles enhanced their well-being.

In a study by Kobasa and Puccetti (1983), executives who were affected by job stress became overweight. To some workers, the way to handle changing and challenging events at work was to overeat. Not all overworked individuals reacted to stress by becoming overweight but those who had particular sensitivities to food engaged in overeating practices (Lazarus & Folkman, 1984). A stressful event may predispose a susceptible person, one who may have been comforted by food in the past, to overeat. Other people may have absorbed themselves in behaviors such as smoking and drinking when stressed (Weiner, 1987).

The executives in the Kobasa and Pucetti study (1983) were primarily males. Regarding the incidence of female obesity, Allan commented

Given the environmental influences impinging on women in our highly technological society all women, regardless of age, heredity, body size, and life-style, have to deal with their weight at some point in their life. Those who are older, have a family history of

obesity, and have had multiple pregnancies are even more vulnerable to those environmental stressors. (1989, p. 673-674)

Obesity and Stress

Earlier studies of obesity were associated with other addictive behaviors such as smoking, alcoholism, and drug use. As with obesity, smoking, drinking, and using drugs are difficult habits to overcome. Shiffman (1986) developed a cluster analysis (similar to the dieting relapse cluster proposed by Grilo et al., 1989) to explain relapse in smokers which consisted of: 1) emotional upset, 2) work pressure, 3) socializing, and 4) relaxation situations. A pattern that is recognized amongst the smoking and dieting relapse clusters is the influence of emotional upset and stress on producing the undesired behaviors of smoking and overeating. Brownell et al. (1986) proposed that affect and stress were related to the incidence of relapse in addictive behaviors.

The condition of obesity per se has been viewed as providing stress as well. Obese individuals have been discriminated against in the job market (Brownell, 1982), in institutions of higher education (Foreyt, 1987), and in

public places (Straus, 1966). No wonder obese women who especially internalize this stigmatization are apt to have low self-esteem and are more vulnerable to depression (Crocker, Cornwell, & Major, 1993). When obese people are dieting for long periods of time, they also are prone to becoming depressed (Rodin et al., 1989). Having feelings of low self-esteem and depression can be stressful to an obese person.

Logically speaking, obesity like heart disease can be viewed as a stress disorder and a lifestyle disorder. The American Dietetic Association (1989) mentioned stress as needing to be addressed by weight loss program personnel. Some people react to stress by becoming overweight and other people who are already obese find their condition to be stressful whether dieting or not. Being discriminated against by others is another area of stress for those who are obese. Yet not all obese people react to stress in the same fashion. A group of people may be able to handle stress constructively and use it to their advantage. These people are presumed to be able to maintain their new weight after completing a weight loss program. The hardiness characteristic may help explain why some individuals are

able to sustain weight loss while many struggle for years and engage in refractory obesity or yo-yo behavior.

Hardiness

Kobasa, Maddi, and Kahn stated, ". . . hardiness is a constellation of personality characteristics that function as a resistance resource in the encounter with stressful life events" (1982, p. 169). The original research on hardiness, as assessed on the Hardiness Scale instrument, centered primarily on its relation to perceived levels of stress in Caucasian male executives (Kobasa, 1979; Kobasa, Maddi, & Courington, 1981; Kobasa, Maddi, & Kahn, 1982; Kobasa, Maddi, & Puccetti, 1982; Kobasa, Maddi, Puccetti, & Zola, 1985), female professionals such as nurses (Pagana, 1990), teachers (Holt, Fine, & Tollefson, 1987) and undergraduate psychology students (Wiebe, 1991). Hardiness is measured by self-report and has been revised and modified over the last decade. Associated with ameliorating stress, hardiness consists of the following components: commitment, control, and challenge. Commitment refers to one's ability to become involved in relationships, to seek support when needed and to have a sense of purpose in life. Control

involves an internal belief of having influence over one's environment. Challenge is the ability to benefit from change and fosters flexibility (Kobasa, Maddi, & Kahn, 1982). The original five tests tapping the hardiness construct are as follows: Commitment--The Alienation Test (Maddi, Kobasa, & Hoover, 1979); Control--The External Locus of Control Scale (Rotter, Seeman, & Liverant, 1962) and the Powerless Scale of the Alienation Test (Maddi et al., 1979); Challenge--Security Scale of the California Life Goals Evaluation Schedule (Hahn, 1966) and the Cognitive Structure Scale of the Personality Research Form (Jackson, 1974).

After analyzing hundreds of questionnaires, Kobasa and her colleagues concluded that commitment, control and challenge were interrelated components of hardiness. They also found that individuals who scored low on the Hardiness Scale (or hardy types) were able to transform their estimation of stressful events into something positive and thus the debilitating effects of stress such as illness were buffered.

Drory and Florian (1991) found that hardiness was associated with good psychosocial adjustment. They contended that hardiness may be best used as an indicator of long-

term social adjustment and serve as a guide for intervention. In reviewing their findings they stated, "Thus it may be argued that it is not that the hardy individual is particularly resilient to stress, but rather that the nonhardy individual is psychologically maladjusted" (Drory & Florian, 1991, p. 330). In corroboration with these findings, Nakano reported in a male Japanese sample, ". . . . hardy individuals are less likely to have physical symptoms and depression. Thus hardiness apparently increases resistance to symptoms" (1990, p. 54).

Studies conducted with women only have shown that hardiness was significantly associated with age, educational level, and marital status (Schmied & Lawler, 1986) and hardy women were viewed as being able to endure a great deal of life change without becoming ill (Rhodewalt & Zone, 1989). In these studies, hardy women were hypothesized to interpret situations in less stressful ways which confirms the findings of other studies conducted with men. In their five-year follow-up study on women and hardiness, Lawler and Schmied (1992) emphasized that no prospective studies on hardiness and physical health have been conducted with non-college females. Nowack reported significant differences

existed by gender and age on the Stress Assessment Profile (which included a cognitive hardiness scale):

These gender differences might be partially explained as a function of the full-time working status of the study sample. Professional working women may tend to experience greater stress and more negligence in health habits due to multiple and conflicting roles at and away from work compared to their male counterparts. (1989, p. 153)

Wiebe analyzed data collected on male and female undergraduate students. In measuring heart rate while her subjects engaged in an evaluative threat task, she stated, "Interestingly, hardiness had no effect among women. These data indicate that the characteristics of hardiness do reduce physiological arousal to stress among men, but make generalizations to women questionable" (1991, p. 96). Allred and Smith (1989) showed in a male undergraduate sample that hardy individuals made more positive statements in a high threat condition than those who were not deemed hardy. The nonhardy individuals reported that they had feelings of alienation, an external locus of control orientation, and viewed change as undesirable. An unanticipated finding in this study was that subjects with an internal locus of control showed increased heart rate and systolic blood

pressure. This increased rate of arousal was linked to an adaptive coping mechanism which presumably signified that an alert physiological state may assist in dealing with a stressful situation. In a study of Type A behavior, blood pressure and hardiness, Contrada stated, "Further examination of factors such as physiological reactivity, health-promoting behaviors, and reactions to symptoms may lead to a better understanding of the relationship between hardiness and physical well-being" (1989, p. 902).

Researchers in the medical field have studied hardiness and its relationship with chronic illness (Lambert et al., 1990; Pollock, Christian, & Sands, 1990; Pollock & Duffy, 1990). Lambert et al. (1990) found in a study of rheumatoid arthritic women that hardiness played a significant role in identifying those women who coped more successfully with their disease. In coping with rheumatoid arthritis, the "hardy" women were actively engaged in methods to decrease their discomfort, increase their ability to function and were more satisfied with their social support systems. They attempted to control the chronic disease instead of the disease controlling them. Hardiness appeared to help explain

why some individuals who are undergoing stressful conditions fare better than others in similar straits.

Critique of the Hardiness Construct

The hardiness construct has been criticized by some researchers. Nagy and Nix (1989) proposed that hardiness and preventive health behavior may be measuring similar components. They found a significant relationship between hardiness and preventive health practices as well as a significant relationship amongst the three components of hardiness. Allred and Smith (1989) stated that the hardiness measures were contaminated with neuroticism. Funk and Houston (1987) reported that hardiness may be more related to depression than physical illness. They doubted the utility of having negative indicators measure hardiness (i.e., alienation, external locus of control). These researchers strongly emphasized that previous research on hardiness has been misleading because of the statistical analysis employed. Kobasa and her colleagues have generally used analysis of variance to report their results. Funk and Houston (1987) as well as Hull, Van Treuren, & Virnelli (1987) have emphasized that multiple regression is the

preferred method of analysis. Other critics have found the challenge component to have inadequate psychometric properties and have disputed its inclusion in the Hardiness Scale (Carver, 1989; Contrada, 1989; Hull et al., 1987; Roth, Wiebe, Fillingim, & Shay, 1989). Ganellen and Blaney (1984) found commitment and challenge but not control to be significantly correlated with social support. In support of the multidimensional construct, Kobasa, Maddi, & Kahn (1982) stated that hardiness should not be related to social support but in essence was in orientation similar to Bandura's (1986) theory of efficacy. The comments of Thompson and Spacapan supported Kobasa and colleagues:

Individuals with high levels of self-efficacy believe they have the ability to carry out the actions necessary to get a particular outcome. In support of Bandura's theory, considerable research has demonstrated that those high in self-efficacy or perceived control are better able to change their behavior in a variety of areas than are those with lower feelings of self-efficacy. (1991, p. 4)

New Scales Measuring Hardiness

Despite differences in opinion, the Hardiness Scale and several new generation scales are still being investigated in a variety of settings. Among them are the Health-Related

Hardiness Scale and the Cognitive Hardiness subscale of the Stress Assessment Profile.

Pollock and Duffy (1990) developed the Health-Related Hardiness Scale (HRHS) to be used with people sustaining an illness (often chronic in nature such as diabetes and rheumatoid arthritis) in addition to the well population. A further area of research deals with nurses undergoing burnout, career changes, and other stressful periods in their professional lives (Pollock, 1989). The HRHS is a 40-item Likert scale instrument which taps commitment, control, and challenge but unlike the original Hardiness Scale, does not use negative indicators.

Nowack (1989) established a 30-item cognitive hardiness scale (based on the work of Kobasa and her colleagues) within a longer Likert scale instrument known as the Stress Assessment Profile (SAP). Cognitive hardiness taps: "1) commitment toward work, family, community, and life; 2) affective, emotional, and behavioral self-control; and 3) optimistic views of change, challenge, and threat" (Nowack, 1989, p. 148). Other subscales of the SAP are: stress, health habits, social support, Type A behavior, psychological well-being, and coping. Health habits that are

of interest concern nutrition, relaxation, sleeping, and level of weekly exercise. The social support subscale identifies the network of family and friends that are available to an individual on an ongoing basis. Type A behavior refers to potentially anxiety provoking situations and perception of time limitations. Psychological well-being taps one's general satisfaction in life. Coping style refers to the manner in which a person handles life's easy and difficult situations including both active (problem-focused subscale) and other methods (intrusive negative thoughts, intrusive positive thoughts, and avoidance subscales).

Coping

Measures to deal with stress involve coping effort. Coping effort "refers to the amount of 'work' that a person is willing to do to accomplish an outcome, regardless of specific strategies used or feelings of self-efficacy to accomplish the objective" (Sussman et al., 1993, p. 601). Some people cope better than others with stressful situations such as dieting and being obese. Also, an individual's ability to cope is not consistently the same throughout one's life as emphasized by Lazarus and Folkman:

We have argued that the relationship between resources and coping is mediated by personal and environmental constraints and level of threat. Furthermore, coping resources are usually not constant over time; they are likely to expand and contract, some more erratically than others, as a function of experience, time of life, and the requirements of adaptation associated with different periods in the life course. (1984, p. 170)

The manner in which a person copes will determine how effective one is in managing and dealing with stress. Roth and Cohen (1986) have identified two central concepts of coping which are approach and avoidance. In other words, an individual will either go towards a threat (or stressful situation) and attempt to rectify it or deny/ignore its existence. An example of coping by using the approach method is an obese individual in a weight loss program who admits to overeating, attempts to learn new eating behaviors, and remains in a program for its full duration. On the other hand, an example of an avoidance method is an obese individual who either denies that she is obese or upon pressure from a spouse attends only one session of a 12-week weight loss program. Persons who use avoidance coping may ". . . . indirectly reduce emotional tension by such behavior as eating or smoking more" (Billings & Moss, 1981, p. 141).

Approaching a stressful situation is seen as being more beneficial than the use of denial. Denial, however, can be effective in the early stages of trauma or when an uncontrollable situation is present (Roth & Cohen, 1986). On the whole, approaching the stressful situation may initially be more difficult but better in the long run:

. . . . people who use denial, or even avoidance, as a mode of coping with stressful encounters will experience greater emotional ease on the first occasion but will pay for that ease by continued vulnerability on subsequent occasions. On the other hand, people who vigilantly face a threat will be more distressed at the outset, but on subsequent occasions they will experience less distress because they will be better prepared to handle the demands. . . . Denial or avoidance in the context of illness is considered ineffective because the person fails to engage in appropriate problem-focused coping (e.g. seeking medical attention or adhering to a medical regimen) that would decrease the actual danger or damage of illness. (Lazarus & Folkman, 1984, p. 134-135)

Lazarus and Folkman (1984) identified two functions of coping as being problem-focused (dealing with the event causing distress) and emotion-focused (adapting an emotional response to the threat). In applying this coping classification to the obese who are stressed about their weight, individuals who actively participate in weight loss programs and attempt to manage their obesity are demonstrating problem-focused coping. Obese individuals who

become despondent, depressed, and worried about their condition and, at times, immobilized by their feelings are using emotion-focused coping.

In summation, "The coping literature has focused on trait variables (e.g., hardiness), process variables (e.g., emotion- and problem-focused coping), and perceived demands (e.g., frequency of negative life events or daily hassles)" (Heppner et al., 1991, p. 171).

Coping and Hardiness

Little information is known about the coping strategies of the hardy. "Hardy individuals presumably are active copers, making the best of situations they are in and unlikely to engage in denial or disengagement" (Carver, Weintraub, & Scheier, 1989, p. 274). Carver et al. emphasized, "Active coping is the process of taking active steps to try to remove or circumvent the stressor or to ameliorate its effects" (1989, p. 268). In essence, active coping seems to be another term for problem-focused coping. In this context, active coping is viewed as the ability to withstand the rigors of a weight loss program which entails completion of the program as well as maintaining the new

learned behaviors with the end result being sustained weight loss. The converse of this positive means of coping is nonactive coping since negative measures and/or avoidance are used instead.

Boyle, Grap, Younger, and Thornby (1991) emphasized that hardiness facilitated coping and stated that hardiness was negatively related to the use of emotion-focused coping. Pollock (1986) concluded that the high hardy in a chronically ill population were more positively adjusted than those lower in hardiness. The high hardy used "action-oriented behaviors" significantly to cope with their illness. Williams et al. (1992) found that high hardiness was associated with problem-focused coping and support seeking whereas low hardiness was associated with avoidance and wishful thinking. Davey, Tallis, & Hodgson reported "some studies have suggested that avoidant coping strategies are associated with both the development of chronic disease and with poorer prognoses" (1993, p. 334). Apparently, individuals who are attempting to lose weight need to know how to effectively cope with their diet (i.e use problem-focused coping strategies as opposed to emotion-focused), particularly during times of temptation.

In reviewing coping, hardiness, and work stress, Long stated that women who were good copers were older than 40 years of age and saw stress as a challenge to be conquered:

With regard to the personality trait "hardiness," good copers reported being extremely involved with their careers, and perceived changes in their careers as extremely challenging. In addition, they believed they had a great deal of influence over the events of their career (i.e., control). In contrast, the poor copers felt less involved with their careers, found changes less challenging, and believed they had less influence over events in their careers compared with the most effective copers. (1988, p. 42)

Long et al. (1992) stated that professional women who used problem-focused coping had higher occupational status, income and education.

Nowack (1989) investigated the interrelationships of coping, cognitive hardiness and health status using the SAP. Along with the cognitive hardiness subscale, Nowack used four coping style subscales: " 1) intrusive positive thoughts (i.e., positive admonitions and self-talk), 2) intrusive negative thoughts (i.e., self-blame, criticism, perfectionistic tendencies, catastrophic/irrational thinking), 3) avoidance (i.e., minimization of the significance of a stressor, not dwelling on a stressor), and 4) problem-focused coping (i.e., behavioral attempts to

change environmental stressors or his/her own behavior)" (Nowack, 1989, p. 147-148). His results demonstrated a positive association among stress, coping and health status. Performing multiple regression analyses, Nowack found that using intrusive negative thoughts predicted psychological distress:

In subsequent analysis of the data, the intrusive negative thoughts scale was found to be significantly correlated with depression, anxiety, somatic complaints, and impulsivity subscales of the psychological distress measure (Hopkins Symptom Checklist) used in this study. These findings appear to be supportive of previous research suggesting that negative self-talk is generally associated with symptoms of psychological distress and specifically related to anxiety and depression. (1989, p. 155)

In addition, using avoidance coping predicted less incidence of physical illness. Nowack explained this finding to mean that those individuals who minimized unpleasant stressful conditions at home or work had less reports of physical symptoms and illness. In this respect, avoidance coping was viewed in a positive fashion. However, Nowack later stated,

Although the use of avoidance was significantly associated with a concurrent measure of physical illness in this study, it was not possible to determine whether this coping style might actually be detrimental in some manner. In general, it would appear that when there is no possibility of changing aversive situations or utilizing approach strategies, avoidance can directly moderate the effect of stress on physical

well-being. Clearly, additional research is required to clarify and explore further the potential benefits and liabilities of avoidance approaches in dealing with stressful work and life events. (1989, p. 155)

Obesity, Coping, and Hardiness

Psychological and cognitive factors have been targeted as indicators of successful weight loss (Ferguson, Brink, Wood, & Koop, 1992). Obese people need to be able to actively cope with the stressful condition of dieting if they want to lose weight. Having high levels of hardiness may very well assist some people to effectively handle the demands of a weight loss program, as opposed to being drop-outs, and sustain weight loss upon program completion. However, what is not clearly known is whether both hardiness and active methods of coping with a weight loss program are keys to successful weight loss. This proposed relationship is a result of the literature found in the areas of hardiness and coping as it seems to fit in well with the recent research on obesity.

Obesity is a serious medical problem in this country. Increasingly evident are the facts that people need to change their attitudes about eating, learn how to internally

accept responsibility and commit themselves to maintaining weight loss; thus demonstrating the personality characteristics of hardiness. Another crucial component is the method of coping with a weight loss program in a constructive fashion such as using problem-focused coping as opposed to avoidance or negative intrusive thinking.

Individuals deemed to be hardy types who have an active coping style (respond positively when learning new ways of eating by engaging in problem-focused behaviors) should succeed in a typical weight loss program by being able to lose weight and sustain weight loss. In theory, these individuals should have scores higher than the established means on the cognitive hardiness and two coping subscales (problem-focused and positive intrusive thoughts) of the SAP. By the same token, low hardy, nonactive types will score below the mean on these subscales and presumably will score higher on the intrusive negative thoughts and avoidance subscales.

Summary

1. Stress has been strongly associated with heart disease, immune disorders, and becoming overweight.

2. In the literature, obesity has been considered to be an addictive behavior and as difficult to terminate as smoking, alcoholism, and drug use.

3. Hardiness is a personality characteristic that has been associated with ameliorating stress. It seems to provide a protective effect on the physical health of those people with and without chronic diseases.

4. The hardiness construct has been critiqued by a number of researchers in various fields. Typical statistical analysis of this construct and its multidimensionality have been questioned.

5. Two other Hardiness scales (Cognitive hardiness of the Stress Assessment Profile and the Health-Related Hardiness Scale) are available and being used with different populations.

6. High hardiness has been associated with problem-focused coping whereas low hardiness has been associated with avoidance coping and wishful thinking.

CHAPTER III METHODOLOGY

The purpose of this study was to determine if, in obese women, cognitive hardiness and active coping were indicators of success in weight loss programs. The following null hypotheses were tested:

1. There will be no significant difference in pounds lost for high and low hardiness groups as measured by the Stress Assessment Profile (SAP).
2. For each of the four coping subscales, there will be no significant difference in pounds lost for high and low coping scores as measured by the SAP.
3. There will be no interaction between hardiness and coping scores and pounds lost for high/low hardiness and coping groups as measured by the SAP.

Subjects

Adult obese women (defined as at least 30 pounds overweight according to the Metropolitan Life Insurance Tables of desirable weight) at least 21 years of age who were currently enrolled in weight loss programs at the time of the study were requested to participate in this research project. The Metropolitan Tables have commonly been used over the years to ascertain obesity (Gray, 1989). Thirty pounds overweight (an educated but arbitrary figure) was chosen to permit the recruitment of the greatest number of subjects in weight loss programs. The Metropolitan Tables were used as a screening guide since percentage of body weight being body fat is not routinely determined by program directors. Most program directors do record beginning height and weight of individuals who enroll in weight loss programs and thus the body mass index (BMI) was used to differentiate obesity from overweight. The BMI was calculated for each subject according to a nomogram for BMI (American Dietetic Association, 1988) and all had values of 27 kg/m^2 and higher indicating an obese condition (Atkinson, 1993).

Using the Yellow Pages of the Alachua County phone book, all weight loss center directors were contacted by

telephone. Two other programs not listed under the heading of "weight" were also contacted by telephone as a result of a notice posted on a central bulletin board in Shands Hospital. Subjects were selected from accessible weight loss programs in Gainesville, Florida. Accessible weight loss programs were those whose directors allowed either direct access to their clients or requested appropriate clients to participate. A number of programs refused to participate claiming that client confidentiality was at stake even after being informed that attempts were made to ensure anonymity.

A total of eight weight loss program directors agreed to assist in finding subjects with only five actually following through by having clients complete the necessary forms in a packet (directions, demographic information, and SAP questionnaire). The directors were requested to recruit cooperative female clients 21 years of age and older who needed to lose at least 30 pounds (according to the Metropolitan Life tables) and preferably who had just begun the weight loss program to volunteer. Attempts were made to only collect data on people just beginning a weight loss program but this became too restrictive. Therefore, participants were included in this study who began a weight

loss program at different times with some people being involved in a particular program for more than a year.

Before the directors began searching for subjects, they were given a packet to peruse and were briefly informed of the nature of the study. The five directors consisted of two elected leaders of two separate nationally known social support groups; two dieticians in private practice; and one director with a background in psychology who worked for a commercial weight loss program. The two public social support groups allowed the investigator to attend their meetings. Subjects who fulfilled the study criteria were found by making announcements at the weekly meetings requesting their participation. The program directors of the three other groups preferred to screen their clients themselves and contacted the investigator when they found volunteers. A sufficient number of packets were then left for the directors to issue. All interested persons were issued a packet which included a sheet of directions briefly explaining the study and its requirements (Appendix A) and a demographics sheet (Appendix B). Since the packets were lengthy, subjects took them home to complete. Numerous contacts by telephone and in person to offices and meetings

were conducted to collect the packets. Seventy-eight subjects agreed to participate by taking the packets but only 45 were returned. Of the 45, one was not adequately completed and one subject was black. As cultural differences exist between blacks and whites regarding the perception of weight, the black subject was not included in the analysis. All forty-three subjects were Caucasian and ranged in age from 25 to 76 years.

Individuals who consented to be subjects were informed that all data collected were held confidential. Each subject received a three-digit code which indicated a group and individual number. The Institutional Review Board of the University of Florida approved this project.

Procedures

After receiving the packet and reading the general directions on the face sheet (Appendix A), subjects were initially requested to provide demographic information consisting of SES, race (Sobal & Stunkard, 1989), number of previous weight loss attempts (Brownell et al., 1986), height, weight, and other relevant information that has been linked to obesity in the literature (Appendix B). Underneath

the demographic form was the Stress Assessment Profile along with a bubble-in answer sheet. Subjects were to answer all questions honestly and to skip those questions that either did not pertain to them or they did not want to disclose (e.g. yearly income). Upon completion, subjects in three of the groups returned the packets to their weight loss program directors. The directors subsequently contacted the investigator and the packets were retrieved from the three offices. Completed packets of the two social support groups were collected from the individuals over a number of weeks at their meeting sites. All packets were checked for completion and assigned a code number.

Data collection began in October of 1993, and concluded at the end of September, 1994, resulting in two groups being followed in a staggered fashion: the first group comprised of 24 subjects in the 1993 data collection and the second group comprised of 17 subjects in the 1994 data collection. Approximately four months after the completed packets were obtained, contact was again made with the program directors. Directors were requested to provide weekly weights of the volunteer subjects along with their original starting weight and entry date into the program. Program dropouts were

noted. Weekly weights were recorded from January through June for the first 24 subjects and were followed-up in May and July for this particular information as well as a telephone call made in early July to ascertain current weight status (six-month follow-up). The second group of 17 subjects were followed in August and October for their weekly weights documented from April through September with the six-month follow-up call placed at the end of September. Although weekly weights were originally recorded, the last weights for each of the six months were used for analysis.

Instruments

The Stress Assessment Profile (SAP) is a 123-item Likert scale instrument which consists of the following scales and their degree of internal consistency (as based on over 1530 employees in the fields of manufacturing, aerospace, communications, and health care): stress (.67), health habits (.73), social support (.81), Type A Behavior (.73), cognitive hardiness (.84), psychological well-being (.90), and five questions to determine response distortion bias. Also included in the SAP is a coping scale which consists of the following subscales: positive self-talk

(.72), negative self-talk (.79), avoidance (.70), and problem-focused (.68). A moderate to high test-retest reliability (based on a two week interval) for each subscale has been reported by Nowack (1990) with the subscales of particular interest including: cognitive hardiness (.96), positive self-talk (.62), negative self-talk (.66), avoidance (.78), and problem-focused (.68). The SAP has shown criterion-related validity with physical and psychological health outcomes in 194 employees working in large companies in the Los Angeles area (Nowack, 1990).

Although subjects were requested to complete the entire questionnaire, formal analysis of only the coping and cognitive hardiness scales were conducted since the focus of the study was on these two areas of interest. Cognitive hardiness includes beliefs regarding control, commitment, and challenge and, in essence, is the same as the original construct of hardiness and has significantly correlated with the global Kobasa Hardiness Scale (Nowack, 1990). The phrasing of sentences in the SAP is different from the original Hardiness Scale but the same types of questions tap the three components of control, commitment, and challenge. Examples from the Cognitive Hardiness scale are the

following items: "I am committed to my job and work activities that I am currently pursuing" and "Most of the meaning in life comes from internal, rather than external, definitions of success, achievement and self-satisfaction." The four coping scales include positive thinking, negative thinking, avoidance, and problem-focused coping. Positive thinking coping refers to thoughts that may be intrusive during a stressful situation that are affirming in nature whereas negative thinking coping incorporates self-blame and irrational thinking. Avoidance coping involves minimizing or ignoring stress. Problem-focused coping is a proactive means of coping as demonstrated in attempts to moderate or change stressors in the environment.

Based on their performance on the hardiness scale of the SAP, the subjects were separated into four groups for each of the following coping style variables: positive thinking, negative thinking, avoidance, and problem-focused. This constituted the following groups: high hardy/active copers; high hardy/nonactive copers; low hardy/active copers; and low hardy/nonactive copers. For hardiness and the four coping scales, subjects were assigned to either a high or low group according to mean scores reported by

Nowack which were based on 1530 employees in the fields of manufacturing, aerospace, communications, and health care organizations (Nowack, 1990). More specifically, Nowack reported the following means: hardiness (106.21), positive self-talk (17.17), negative self-talk (13.01), avoidance (15.66), problem-focused coping (15.82). The higher the score on all of the scales, the more salient the characteristic.

Statistical Analysis

The dependent variable being measured was weight loss which is defined as being the sustained number of pounds lost from date of entry into the study (January for group one and April for group two) until six months later when the follow-up telephone call was placed. The subjects' weight measurements were also recorded to monitor "yo-yoing" or how they varied on a monthly basis during the six-month period. Atkinson (1993) reported that maintenance of weight loss for six months was a minimum standard in determining the success of a particular program and many of the subjects had been in a weight loss program for much longer. The five-year standard in measuring weight loss success would have been a

more foolproof method but was not practical in this case due to time limitations and general attrition of subjects.

The independent variables included cognitive hardiness and coping style scores on the Stress Assessment Profile. Means on these scales of the profile were calculated for each subject and later compared with Nowack's established means. Groups were composed of subjects at or above group means and those below the means as presented by Nowack. For example, a subject who had a high hardy and high problem-focused coping score would be in one group while a subject with a high hardy but low problem-focused score would be in another. All raw scores were analysed with the SAS statistical package. The significance level was set at $p < .05$. Split plot ANOVA was used to investigate whether cognitive hardiness and active coping style mechanisms were indicators of success in weight loss programs as evidenced by total number of pounds lost. After adjusting for weight loss, weight fluctuations represented by the last available weight measurement of the month for six months and predicted from hardiness and coping scores were reported.

A general outcome measure included rate of attrition from a weight loss program. A chi-square was performed to

determine whether hardiness and coping scores influenced who would remain in a weight loss program and who would drop out. Descriptive data are presented to give a picture of the sample such as age, education, and average number of previous weight loss attempts (refer to Table 1 in Chapter IV). Information regarding the characteristics of various weight loss programs is shown in Table 2 in Chapter IV.

CHAPTER IV RESULTS

Introduction

The purpose of this study was to determine if, in obese females, cognitive hardiness and active coping style mechanisms were indicators of success in weight loss programs. Women over the age of 21 who were enrolled in weight loss programs in the Gainesville area were requested to participate in this study.

A sample of obese Caucasian women who were at least 30 pounds overweight agreed to participate in this study (n=43) and represented five different weight loss programs. Two subjects moved during the study and left no forwarding telephone number leaving 41 subjects to be followed. All subjects completed a demographics survey (Appendix B), the Stress Assessment Profile, and permitted their weights to be recorded each month for a six-month period. Each subject was telephoned at the end of a six-month period and was asked her current weight to determine if she had lost weight.

Two major limitations in this study need to be emphasized. First, different weight loss programs with various philosophies and lengths were sampled as opposed to one particular program. The interest of this study concerns the individual characteristics of subjects and not their program affiliation. Second, only a six-month follow-up period was feasible which is a minimal amount of time to evaluate weight loss success. Five years is the preferred period of time for follow-up but is infrequently found in the literature due to logistical reasons.

Descriptive Statistics

Characteristics of the obese subjects are shown in Table 1. Subjects reported numerous attempts at weight loss ($\bar{X}=3.5$) and being overweight (their perception) for a considerable time ($\bar{X}=25.77$ years). Almost half of the subjects (49%) weighed over 200 pounds when beginning the study. College graduates comprised 35% of the subject sample. Fifty-eight percent of the women stated that in the past they were able to maintain weight loss for one year whereas only 35% were able to maintain weight loss for five years.

TABLE 1
CHARACTERISTICS OF SUBJECTS (N=43)

<u>VARIABLE</u>	<u>RANGE</u>	<u>MEAN</u>	<u>SD</u>
Age	25-76 years	46.95	11.09
Starting weight	151-295 pounds	203.26	34.58
Weight loss attempts within past 5 years	0-25 attempts	3.53	3.90
Years considered to be overweight	2 years-lifelong	25.77	18.78
Education	11th grade-doctoral degree	2.13 years post-secondary	2.16

The five directors/leaders of the weight loss programs were requested to provide information on their particular methods of facilitating weight loss. A compilation of the most important characteristics are presented in Table 2. Though all of the programs sampled charged a fee for services, the commercial program was the most expensive because food products were required to be purchased. The two separate social support programs did not advocate any specific weight loss techniques but provided a means for social interaction. The support meetings were held weekly and guest speakers were invited to lecture to the group

concerning nutrition, exercise, and other topics of interest. The two dietitians in private practice emphasized that their clients received individualized treatment. In their estimation, lifestyle changes were crucial to sustaining weight loss.

TABLE 2
CHARACTERISTICS OF WEIGHT LOSS PROGRAMS (N=5)

	<u>% SAMPLE</u>	<u>LEADER</u>	<u>STUDY</u>	
			<u>ATTRITION</u>	<u>UNIQUE FEATURE</u>
Commercial	21%	Trained personnel of various backgrounds	67%	Not a diet program but a method of speeding up one's metabolism
Social Support	49%	Elected leaders from the group membership	43%	Support group -- No special diet plan emphasized
Private Practice	30%	Registered Dietitians	92%	Individualized program based on making lifestyle changes

As was noted in the literature on weight loss, many subjects dropped out of their programs during the course of

this study. In fact, only 19 subjects participated in a weight loss program for the full six months while 22 dropped out and two subjects moved away from Alachua County. Dropouts were defined as obese persons who did not return to their programs to be periodically weighed. At least weekly measurements were standardly recorded at each weight loss center. If no weight measurements were recorded for one month for an individual, the person was considered a dropout even though she may have returned at a later date such as two months later. Subjects who were sporadic in their attendance but were weighed at some point during each month were not considered to be dropouts.

Chi square analyses were performed to determine if any differences existed between those who remained in a weight loss program and those who dropped out. Separate chi squares for each of the coping subscales and cognitive hardiness scale were conducted. Chi square values ranging from 0.82 to 0.00 were found. No significant differences were discovered between any of the five groups. None of these variables had an appreciable effect on whether or not an individual with specific coping styles would remain in a weight loss program until weight loss goals were met.

Quantitative Analysis

For each obese subject in the sample, the following independent variables were tested: cognitive hardiness; positive, negative, avoidance and problem-focused coping. Hardiness was then paired with each of the coping style mechanisms to determine if any interactions were present. Weekly weight measurements were collected over a six-month period with the last available weight for each month being recorded and analyzed. The cognitive hardiness scale is

composed of attitudes and beliefs about work and life including: 1) involvement--commitment, as opposed to alienation, to one's work, family, self, hobbies; 2) challenge--attitudes around viewing life as challenges as opposed to threats; 3) control--beliefs that one has a sense of control over significant outcomes in life. (Nowack, 1991, p. 120)

In addition to hardiness, "Coping style was assessed by the 20-item coping style scale which was developed to appraise four types of coping responses: intrusive positive thoughts, intrusive negative thoughts, avoidance, and problem-focused coping" (Nowack, 1991, p. 120). Examples of items from the coping style scale include the following:

Intrusive Positive Thoughts--"Say and think positive things to myself to make me feel better about it";
Intrusive Negative Thoughts--"Blame and criticize myself for creating or causing my problem"; Avoidance--
"Avoid thinking about it when it crosses my mind"; and

Problem-Focused coping--"Change something in my own behavior or environment to minimize or alleviate my dissatisfaction." (Nowack, 1989, p. 150)

For each of these scales, respondents evaluate how strongly they agree with specific statements on a 1-5 scale from "strongly agree" to "strongly disagree." The dependent variable was the final weight (presumably weight loss) of the individual at the end of the six-month period. Weight loss was defined as being the number of pounds lost from the beginning of the sixth-month period to the last available weight at the end of six months. By the same token, weight gain was defined as any increased number of pounds during the same period. A telephone call was made to ascertain the current weight standing of each person at the end of the study. The SAS statistical package was used to analyze the data.

A split plot analysis of variance with a repeated measures design was used to investigate whether cognitive hardiness and active coping style mechanisms were indicators of success in weight loss programs as evidenced by the mean number of pounds lost over a six-month period. Using mean scores for the hardiness and the four coping scales reported by Nowack (1990) based on the responses of 1530 respondents,

the subjects in the present study were assigned to a "high" and "low" group for each scale. The significance level was set at $p < .05$.

Results of the Split Plot ANOVA with Repeated Measures

Table 3 presents the means and standard deviations of the independent variables; Table 4 summarizes the results of the split plot analysis of variance for weight.

TABLE 3
MEANS OF INDEPENDENT VARIABLES

<u>Variable</u>	<u>High</u>	<u>SD</u>	<u>Low</u>	<u>SD</u>
hardiness	115.74	7.54	94.59	9.42
positive thinking	19.61	1.46	14.56	3.19
negative thinking	16.44	1.72	10.22	3.06
avoidance	17.35	1.26	12.78	1.90
problem-focused	17.71	1.23	12.94	2.77

TABLE 4
SPLIT PLOT ANALYSIS OF VARIANCE FOR WEIGHT

BETWEEN SUBJECTS

<u>Source</u>	<u>df</u>	<u>SS</u>	<u>F</u>	<u>p</u>
hardiness (hardy)	1	5452.68	2.14	.19
positive thinking (pos.)	1	5072.85	1.99	.21
negative thinking (neg.)	1	171.40	.07	.80
avoidance	1	36587.78	14.36	.009*
problem-focused (prob.)	1	6415.69	2.52	.16
hardy x positive thinking	1	3485.49	1.37	.29
hardy x negative thinking	1	11268.34	4.42	.08
hardy x avoidance	1	29685.51	11.65	.01*
hardy x problem-focused	1	2930.17	1.15	.32
between subjects	6	15283.26		

WITHIN SUBJECTS

occasion (weight measures)	5	58179.12	116.49	.0001*
occasion x hardy	5	960.52	1.92	.12
occasion x positive thinking	5	879.30	1.76	.15
occasion x negative thinking	5	41.51	.08	.99
occasion x avoidance	5	5648.50	11.31	.0001*
occasion x problem-focused	5	1096.80	2.20	.08
occasion x hardy x pos.	5	510.82	1.02	.42
occasion x hardy x neg.	5	1696.56	3.40	.01*
occasion x hardy x avoidance	5	4614.66	9.24	.0001*
occasion x hardy x prob.	5	491.28	.98	.44
within subjects	30	2996.62		

* significant $p < .05$

Hypothesis one stated that no significant difference existed in pounds lost for high and low hardiness groups as measured by the SAP. High and low hardiness alone were not

indicators of whether subjects were more successful or not in losing weight as no significant differences were found between groups ($F = 1.92$; $p < .12$). However, when coupled with coping style (specifically, avoidance and negative thinking coping), hardiness was found to be significant as discussed below. This hypothesis was not rejected.

Hypothesis two stated that for each of the four coping subscales, no significant difference would exist in pounds lost for high and low coping scores on the SAP. The avoidance subscale proved to be significant ($F = 11.31$; $p < .0001$). According to Nowack (1989), avoidance coping was not dwelling on a problem and minimizing the extent of a stressor (e.g., obesity, weight loss). Thus individuals who scored high on avoidance coping ($\bar{X} = 17.35$) were minimizing their overweight condition and basically ignoring their obesity. However, those with low scores ($\bar{X} = 12.78$) were concerned about their condition and may be more inclined to take measures to lose weight since they recognized that a problem existed. When weight loss was compared in the high and low avoidance groups, individuals who had low scores on avoidance coping were found to be significantly more successful in losing weight than their counterparts who had

high scores on avoidance coping when considering weight fluctuations over six months. Thus, low avoidance coping individuals were not minimizing their obese condition and were taking steps to lose weight rather than ignoring their obesity. Hypothesis two was thus rejected in part on the basis that individuals who did not use avoidance coping (below the mean or low scores) were significantly more successful at losing weight than those using avoidance (above the mean or high scores) as a coping mechanism. No significant differences between high and low groups for positive thinking ($p < .15$), negative thinking ($p < .99$), and problem-focused coping ($p < .08$) were found.

Hypothesis three stated that there would be no significant interaction between hardiness and coping scores and pounds lost for high/low hardiness and coping groups as measured by the SAP. Hardiness significantly interacted with both avoidance coping and negative thinking coping ($p < .0001$ and $p < .01$, respectively using the Huynh-Feldt correction). Table 5 provides a more detailed analysis of the loss (or gain) in weight over a six-month period for the hardy x avoidance coping and the hardy x negative coping groups.

TABLE 5
 MEAN WEIGHT BY OCCASION (in lbs.)
 HARDINESS (H) BY AVOIDANCE (A)
 HARDINESS (H) BY NEGATIVE THINKING (N)

		MONTHS						Wt. Loss (Gain)
H	A	1	2	3	4	5	6	
Hi	Hi	201.2	200.3	193.9	192.4	191.3	186.3	14.9
Hi	Lo	205.0	204.7	204.0	174.0	175.5	174.5	30.5
Lo	Hi	211.4	216.0	235.0	222.8	234.8	236.7	(25.3)
Lo	Lo	187.3	187.2	191.3	193.1	189.6	178.9	8.5
H	N							
Hi	Hi	178.3	162.0	161.0	160.5	161.0	162.0	16.3
Hi	Lo	206.8	208.5	203.5	195.4	194.6	189.9	16.9
Lo	Hi	196.0	196.4	200.3	200.0	201.8	191.7	4.3
Lo	Lo	199.2	191.3	199.4	207.3	208.3	206.7	(7.5)

For the hardiness x avoidance coping groups, all but the low hardy x high avoidance group lost weight ranging from over 30 pounds to just over 8 pounds. For both of the high hardy groups (14.93 and 30.50 pounds, respectively) a rather consistent loss in weight over the six-month period occurred. For the low hardy groups, the high avoidance group gained about 25.30 pounds and the low avoidance lost 8.47 pounds. In addition, the low hardy groups showed considerable more cyclical (yo-yoing) weight changes. An examination of the within subjects error term in Table 4

provides additional evidence of a great deal of variation between subjects.

Examination of the weight loss for the four hardy x negative coping groups reflects a similar effect as described above. Table 5 provides some indication that at least one of the low hardiness groups actually gained weight over a six-month period. Nowack (1989) stated that negative thinking involved self-blame and criticism as well as irrational thinking. Both hardy groups were practically equally successful (16.94 pounds for low negative thinking and 16.33 pounds for high negative thinking) in weight loss. The low hardy high negative group lost on the average 4.29 pounds while the low hardy low negative thinking group gained 7.51 pounds. Evidence of yo-yoing is apparent in all groups but slightly less of a pattern is noted in the high hardy groups. High hardiness significantly interacted with negative thinking and avoidance coping permitting partial rejection of hypothesis three.

In summary, no significant difference existed in pounds lost for high and low hardiness groups resulting in hypothesis one not being rejected. A significant difference in pounds lost for the low avoidance coping group was found

permitting partial rejection of hypothesis two. The three other coping mechanisms (positive thinking, negative thinking, and problem-focused coping) were not significant. Significant interaction was found between hardiness and both avoidance and negative thinking coping. Thus, hypothesis three was also partially rejected.

CHAPTER V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to determine if, in obese women, cognitive hardiness and active coping styles were indicators of success in a weight loss program. Women over the age of 21 and at least 30 pounds overweight were recruited from various weight loss programs in Gainesville, Florida. Forty-one subjects fully participated in this study by completing a demographics form, the Stress Assessment Profile, and allowing their weekly weight to be monitored during a six-month period. Subjects ranged in age from 25-76 years, on the average had two years of postsecondary education and made 3.5 attempts to lose weight in the past five years. Approximately half of these women were at least 200 pounds when they began the study. Five separate weight loss programs were represented and were categorized as commercial (one program), social support (two programs), and private practice (two programs). Limitations of this study

include the short period of follow-up and the sampling of various weight loss programs with different philosophies. Independent variables measured were cognitive hardiness and four coping styles (i.e., positive and negative thinking, avoidance, and problem-focused coping) and the dependent variable was the number of pounds lost over a six-month period. The Stress Assessment Profile developed by Nowack (1990) was the instrument used in this study.

The following questions were asked:

1. Is there a significant difference in the amount of weight lost by individuals who are identified as either being high hardy or low hardy on the Stress Assessment Profile (SAP)?

2. Is there a significant difference in the amount of weight lost by individuals who are identified as either being high (problem-focused or active) or low (nonactive) copers on the SAP?

3. Is there any interaction between hardiness and coping style and the number of pounds lost in a weight loss program by obese individuals who are either high or low in hardiness and coping as measured by the SAP?

To answer the aforementioned questions, a split plot analysis of variance with repeated measures design was used with the independent variables being cognitive hardiness and the four coping styles (i.e, positive and negative thinking, avoidance and problem-solving) and the dependent variable being final weight loss at the end of six months. The repeated measures were the six monthly weight measurements of each person recorded by the weight loss program leaders. Descriptive statistics were compiled to characterize the subject sample. A chi-square was performed to ascertain if certain personality traits influenced who would remain in a weight loss program.

Results indicated that no significant difference in pounds lost in a weight loss program was found between high and low hardiness groups. A significant difference in pounds lost for high and low avoidance coping was found in addition to a significant interaction between hardiness and both negative thinking and avoidance coping groups. This permitted partial rejection of hypotheses two and three whereas hypothesis one was not rejected.

Conclusions

The results of this study confirm to a certain degree the work of Kobasa and colleagues in the area of hardiness:

1. Individuals high in hardiness and low avoidance coping on the SAP had more success in losing weight demonstrating the beneficial and moderating effect of hardiness when combined with certain types of coping.

The results of this study do not confirm the research of Nowack, Carver and others in the following areas:

1. Individuals with lower scores on the avoidance coping subscale were better able to deal with stressors (such as participating in a weight loss program, monitoring patterns of eating) than those with higher scores.

2. Hardiness, as a main effect, was not a predictor of successful weight loss in obese women. A more complex relationship exists between hardiness and coping style.

3. Positive thinking and problem-solving coping styles (active methods of dealing with stress related problems) were not significantly used by the most successful weight losers.

4. Negative thinking which has been considered to be ineffectual in dealing with weight loss was used by some of the most successful weight losers.

In reference to the research on obesity, the findings of this study confirm the following:

1. Women comprised the vast majority of total program participants in the weight loss programs contacted.

2. Multiple attempts to lose weight in the past five years were made by obese individuals with varying degrees of success.

3. Refractory obesity was a common problem amongst people involved in weight loss programs.

4. Attrition was found in all types of weight loss programs but was less pronounced in one particular program with a strong social network.

Significance of Coping Styles

Regarding avoidance coping, obese subjects who had low scores lost more weight than those with high scores--an anticipated finding since obese women confronting their overweight condition and not minimizing their excess weight were logically expected to be significantly more successful.

High hardy low avoidance obese subjects responded well to the challenge of losing weight. The high hardy high avoidance group was the next most successful group though on the average it lost half the weight of the high hardy low avoidance group. Interestingly, Nowack (1989) found avoidance coping predicted less incidence of physical illness and thus viewed coping of this nature in a more positive sense. He had misgivings about the benefits of always using avoidance coping but postulated when avoidance might best serve a stressed individual. For example, avoidance coping may be helpful when an individual has a terminal medical condition. Obesity can be considered a chronic condition but is still thought to be curable and not an impossible state to remedy. Hypothetically, on a short-term basis, avoidance may assist the obese person in not dwelling on her weight and being preoccupied with food. Instead of confronting the problem of being overweight, an individual using avoidance coping may shun social events and other activities in which food is likely to be a focal point. However, avoiding the overweight issue is bound to simply delay the weight loss process and could be counterproductive. The high hardy low avoidance group was

expected to be the most successful at losing weight and this proved to be the case.

According to Carver et al. (1989), active coping or problem-focused coping involves ameliorating or circumventing a stressor. Carver and colleagues found that hardiness correlated with active coping and found that coping varied over the course of a stressful event. Williams et al. (1992) also discovered that high hardiness was associated with problem-focused coping and social support whereas low hardiness was associated with wishful thinking and avoidance. Boyle et al. (1991) did not find an association with hardiness and problem-focused coping but a relationship was apparent between hardiness and social support. An unanticipated finding in this study was that positive thinking and problem-solving coping were not significantly used by the people who lost the most weight. Instead, those who had high scores on negative thinking were as successful as those who had low scores. Typically, individuals using negative thinking are blaming and criticizing themselves for their shortcomings. Yet the hardy obese individuals having high scores on negative thinking

were just as successful losing weight as those with lower scores.

The literature does not support using negative thinking coping when attempting weight loss. Researchers have found that being critical of your lapses in dieting and telling yourself that you are a failure at losing weight can lead to binges and weight gain (Grilo et al., 1989; Marcus et al., 1988; Rodin et al., 1989; Sjoberg & Persson, 1979; Stunkard, 1977). Lazarus (1966) viewed stress as producing such emotions as anxiety and depression which is what the obese often experience when undergoing weight loss (Foreyt, 1987; Rodin et al., 1989). Nowack (1989) found that anxiety and depression were associated with negative self-talk. Perhaps obese individuals are conditioned to think in a negative fashion and use this coping mechanism because of its familiarity. Evidently, some women use negative thinking more than others but this type of coping did not deter them from losing weight.

At the other end of the spectrum, positive thinking has been acclaimed in such diverse areas as medicine as well as religion and sports. Weight loss program directors have used positive thinking (primarily known as cognitive coping and

cognitive restructuring) to encourage the obese to modify eating habits without suffering deprivation and to ultimately feel better about themselves (Grilo et al., 1989; Perri et al., 1984; Weinsier et al., 1984). The subjects in this study probably goaded themselves to lose weight by using castigating methods. Possibly this can be effective for a short period of time but the potential to backfire at a later date is present. Yo-yoing is potentially a result of negative thinking that has ceased to work after constant criticism has taken its toll on one's sense of self.

Significance of Hardiness

Hardiness, when combined with either avoidance or negative thinking, was found to enable the obese women in this study to be more successful in losing weight. However, by itself, hardiness was not a predictor of successful weight loss. Other medical studies have shown that hardiness moderated the effects of stress from arthritis and heart disease (Contrada, 1989; Lambert et al., 1990).

Despite the fact that hardiness was not a single predictor of successful weight loss, it was intimately associated with coping and in combination proved to be

significant. Hardiness may provide just a partial answer to the question of who will typically succeed in a weight loss program. Possibly, obesity is too complex a condition to demonstrate such a clear relationship with only one variable. Certainly obesity researchers have been grappling for years with the causes of this condition as well as ways to intervene.

Support of Obesity Research

The results of this study support many of the findings in the obesity literature. First, according to the weight loss program directors sampled in Alachua County, a majority of their clientele are women. In one of the social support programs, a token man among 40 women was observed to be a regular participant. Men are seldom participants in programs of this nature, not only in Gainesville but nationwide (Harris et al., 1990). Second, reviewing the subjects' answers on the demographics sheet showed that almost all had engaged in losing weight several times on a formal basis within the past five years. One subject stated that she had made over 20 attempts but the average was 3.5 attempts. Third, amongst the delineated groups, all had a subset of

individuals who gained weight at least once (usually two or three times) during the monitored six-month period. No matter which program or whether a subject was hardy or not, refractory obesity was an all too common problem for approximately 50% of the subjects. Last, attrition was present in all groups but was less pronounced in the high hardy groups.

On a percentage basis, the program that had the least number of dropouts (3 dropouts out of 15 individuals) was one of the social support groups which had about 30 to 40 faithful members with 15 people volunteering for the study. The other social support organization was a newly formed group (October, 1993) at a work site that did not have the enthusiasm to remain self-sustaining and was essentially defunct at the end of the study. The thriving social support group was observed on numerous occasions and appeared to be extremely supportive of all members. The atmosphere created by this group was friendly, lively, and warm. Most of the members were obese but at least a half dozen people who were not obese and had met their weight goals continued to attend the weekly meetings. These formerly obese individuals were still active participants serving as role models. Perhaps

the structure and the philosophy of this particular social support group in addition to the chemistry of prominent key members made this group popular and less susceptible to attrition. Due to the low attrition of this group incorporating social support, a split plot ANOVA with repeated measures was conducted on two other variables in a post hoc fashion. The two variables were social support and psychological well-being. No significant results were found.

Recommendations

The exploratory nature of this study has shown that further research is warranted and can be refined by answering the following questions:

1. Do hardiness and coping scores change on the SAP over an extended period of time while obese individuals participate in a weight loss program?

Ideally, subjects from one type of weight loss program such as Weight Watchers, TOPS (Taking Off Pounds Sensibly), or Overeaters Anonymous can be randomly sampled to enhance generalizability. Subjects should be followed in a longitudinal fashion to examine if scores change on the SAP in the areas of hardiness and coping. Periodically, the SAP

can be issued and the results compared with each other.

Though hardiness is considered to be more of a trait, coping style may change over the course of a stressful event (Carver et al., 1989; Lazarus & Folkman, 1984) and this may be ascertained while following subjects over several years.

2. Do coping and hardiness scores vary considerably in obese individuals undergoing weight loss when several questionnaires are used?

The SAP is a recently developed instrument and is still undergoing testing with different populations. In the Health-Related Hardiness Scale (Pollock & Duffy, 1990) a "Ways of Coping" checklist is included which consists of the following subscales: problem-focused coping; wishful thinking; seeking social support; and self-blame and avoidance. A hardiness scale which taps control, commitment, and challenge is also included. Comparing the results of the obese subjects on these two instruments may prove to be of interest.

3. Is there a difference in weight loss between high hardy and low hardy obese individuals who participate in weight loss programs that use social support measures?

Boyle et al. (1991) stated that a relationship existed between hardiness and social support in their research on burnout in nurses. Following obese individuals in programs that focus on social support might possibly demonstrate a relationship between hardiness and successful weight loss though as an afterthought this was not confirmed in the present study. Well known weight loss programs such as Overeaters Anonymous, Weight Watchers, and TOPS all use social support and competition as a means of facilitating weight loss and would be excellent groups to evaluate.

Brownell and Wadden stated

Insufficient attention has been paid to the benefit of group as opposed to individual treatment, or to the role of adjunct psychotherapy for persons undergoing weight loss. Our clinical experience indicates that group treatment - which combines structure, support, and competition - is the most reliable method of inducing weight loss. Adjunct therapy, however, is helpful with persons who report binge eating or significant dysphoria related to interpersonal relationships, work, or other issues. Overeaters Anonymous may provide a low-cost alternative to individual therapy for binge eaters who are unlikely to obtain the full measure of help they need from a traditional behavioral program. (1991, p. 168)

4. Is hardiness a significant factor in weight loss for minority women in weight loss programs?

Only Caucasian subjects participated in this study with the exception of one black female who was not included

in the results. Minority women were underrepresented in the weight loss programs contacted. These women do not as commonly view obesity in a negative fashion and are not as likely to participate in weight loss programs. Many Hispanic and Afro-American women, specifically, have considered their overweight condition to be a reflection of their economic prosperity and cooking ability (Brown, 1993; Furnham & Alibhai, 1983). Cultural differences may exist in the presence or absence of hardiness within certain ethnic groups. In the same vein, coping styles may differ in that negative thinking may not be used as frequently since obesity may not be perceived as being stressful.

5. Are levels of hardiness and coping styles improved when intervention programs are used?

Because of the strong interaction effect of hardiness and negative and avoidance coping styles, programs should be developed which include intervention programs such as attribution training (McCombs, 1982) to attempt to modify the coping styles of unsuccessful weight loss subjects.

APPENDIX A
INFORMATION SHEET FOR SUBJECTS

To: Individuals participating in a research project investigating the psychology of weight loss (must be female, over 21 years of age and at least 30 pounds overweight)

From: Carolyn Hanson, MA, OTR
Faculty member of the Occupational Therapy Department
University of Florida

This study will take approximately 30 minutes to complete and can be taken home if desired and then returned at your next visit. The following is requested:

1. Fill out the demographics sheet as completely as possible. You do not have to answer any question that you do not want to answer. All data will be held confidential. You do not need to write your full name on the form but I do need a name to call you when I telephone (see # 4). Please use the same name on the demographics sheet and the answer sheet.

2. Fill out the questionnaire to the best of your knowledge (there are no right answers). Limit your responses to what is provided. That is, please do not select a response that is midway between two possible choices but choose the category that best describes you the majority of the time. Use the provided answer sheet (side one only) for your responses and please use a #2 pencil. An additional answer sheet on which you can write is attached for questions requiring more responses (questions 104-123).

3. Allow me access to your weekly weight loss data while in the weight loss program.

4. Allow me to briefly call you once after six months have passed. Confidentiality will be maintained. All data will be coded by the investigator so your particular results will not be identifiable.

Thank you very much for your time and effort. If you have any more questions, please feel free to contact me at 373-4502.

Carolyn Hanson

APPENDIX B
DEMOGRAPHICS

Name _____ phone # _____

Age _____ weight _____ height _____ sex _____

race _____ last grade completed in school _____

occupation _____

current household salary: _____	less than \$10,000
(please check one) _____	\$10,000 - \$20,000
_____	\$21,000 - \$40,000
_____	\$41,000 - \$60,000
_____	\$61,000 - \$80,000
_____	\$81,000 - \$99,000
_____	over \$100,000

DIET HISTORY: Fill in the blanks as accurately as possible.

Number of previous weight loss attempts in the past 5 years.

Average number of pounds taken off before participating in the weight loss program. _____

Have you in the past been able to maintain weight loss for one year? _____ More than one year? _____

What methods of dieting have been helpful to you now or in the past? _____

What has been your least successful method of losing weight?

How many pounds do you now want to lose? _____

How long have you considered yourself overweight? _____

What is your motivation for losing weight?

Thank you for filling out this questionnaire. All
information will be kept confidential.

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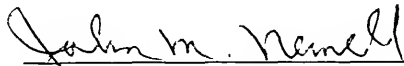
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BIOGRAPHICAL SKETCH

Carolyn Schmidt Hanson was born in Yonkers, New York, on June 21, 1955. After graduating from the University of Florida with a bachelor's degree in elementary education in 1977, she worked first in a nursery school and then in a hospital where she learned about the field of occupational therapy. In 1980, she graduated with a Bachelor of Science degree in occupational therapy from Florida International University and subsequently spent five years providing patient care to individuals with a wide variety of diagnoses. Being an avid runner and believing strongly in the benefits of exercise and the prevention of disease, she returned to the University of Florida to complete a master's degree in exercise physiology in 1985. In 1986, Carolyn became the Work Hardening Coordinator for the Department of Occupational Therapy at the University of Florida where she rehabilitated workers who had injured their backs. While in this position, she had the opportunity to teach undergraduate students. Returning to her roots in education,

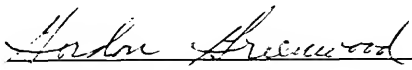
Carolyn decided to pursue her doctorate in educational psychology to enable her to engage in research and teaching at the university level. She is currently on the faculty in the College of Health Related Professions.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



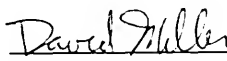
John M. Newell, Chair
Professor of Foundations of
Education

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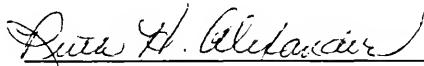
Gordon Greenwood
Professor of Foundations of
Education

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David Miller
Associate Professor of
Foundations

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

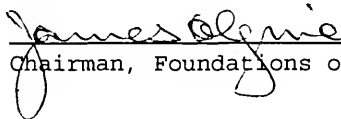


Ruth Alexander

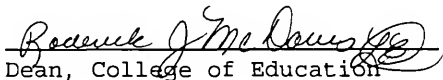
Distinguished Service Professor of
Exercise and Sport Sciences

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May, 1995



Chairman, Foundations of Education



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